

**AMENDMENTS TO THE CLAIMS**

1. (Currently amended): A process for the production of a  $\beta$ -lactam, comprising the steps of:
  - a) fermenting on a volume scale of at least 10 m<sup>3</sup>, a microbial strain that produces a  $\beta$ -lactam in a fermentation medium which contains only chemically defined ~~[[components]]~~ constituents as carbon and nitrogen sources and contains no complex raw materials, and
  - b) recovering the  $\beta$ -lactam from the fermentation medium.
2. (Canceled)
3. (Currently amended): The process of claim 1, wherein the chemically defined ~~[[components]]~~ constituents comprise a carbon source selected from the group consisting of glucose, lactose, fructose, sucrose, a maltodextrin, starch inulin, glycerol, a vegetable oil, a hydrocarbon, an alcohol, and an organic acid~~[[;]]~~; and~~[[/or]]~~ a nitrogen source selected from the group consisting of urea, ammonia, nitrate, an ammonium salt and an amino acid.
4. (Previously presented): The process of claim 3, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.
5. (Previously amended): The process of claim 1, wherein said fermenting is via a batch, a repeated batch, a fed-batch, a repeated fed-batch or a continuous fermentation process.
6. (Previously amended): The process of claim 5, wherein fermenting is via a fed-batch process.
7. (Currently amended): The process of claim 6, wherein a carbon and~~[[/or]]~~ a nitrogen source is fed to the process.
8. (Previously presented): The process of claim 7, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.
- 9-14. (Canceled)

15. (Previously amended): The process of claim 1, wherein the microbial strain is a filamentous microbial strain.

16. (Previously presented): The process of claim 15, wherein the filamentous strain is a fungus.

17-18. (Canceled)

19. (Previously presented): The process of claim 16, wherein the fungus is a *Penicillium* strain.

20. (Previously amended): The process of claim 19, wherein the fungus is *Penicillium chrysogenum*.

21-35. (Canceled)

36. (Previously presented): The process of claim 19 wherein the  $\beta$ -lactam is penicillin V.

37. (Previously presented): The method of claim 19 wherein the  $\beta$ -lactam is adipoyl-7-ADCA.

38. (Withdrawn): A process for the production of a  $\beta$ -lactam, comprising the steps of:  
a) fermenting on a volume scale of at least 10 m<sup>3</sup>, a microbial strain that produces a  $\beta$ -lactam in a fermentation medium which contains only chemically defined components as carbon and nitrogen sources and contains no complex raw materials, and

b) recovering the  $\beta$ -lactam from the fermentation medium,  
wherein the microbial strain is a mutated or recombinant  $\beta$ -lactam producing strain that is capable of being fermented on said volume scale and that has been selected for improved performance on the medium and/or increased  $\beta$ -lactam production in comparison to a parent strain.

39. (Withdrawn): A process for the production of a  $\beta$ -lactam, comprising the steps of:

a) fermenting on a volume scale of at least 10 m<sup>3</sup>, a microbial strain that produces a  $\beta$ -lactam in a fermentation medium which contains chemically defined components and a complex carbon and/or nitrogen source which is less than 10% of the total carbon and/or nitrogen sources in the medium, and

b) recovering the  $\beta$ -lactam from the fermentation medium,

wherein the microbial strain is a mutated or recombinant  $\beta$ -lactam producing strain that is capable of being fermented on said volume scale and that has been selected for improved performance on the medium and/or increased  $\beta$ -lactam production in comparison to a parent strain.

40. (Withdrawn): The process of claim 38, wherein the chemically defined components comprise a carbon source selected from the group consisting of glucose, lactose, fructose, sucrose, a maltodextrin, starch inulin, glycerol, a vegetable oil, a hydrocarbon, an alcohol, an organic acid, and/or a nitrogen source selected from the group consisting of urea, ammonia, nitrate, an ammonium salt and an amino acid.

41. (Withdrawn): The process of claim 40, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

42. (Withdrawn): The process of claim 38, wherein said fermenting is via a batch, a repeated batch, a fed-batch, a repeated fed-batch or a continuous fermentation process.

43. (Withdrawn): The process of claim 42, wherein fermenting is via a fed-batch process.

44. (Withdrawn): The process of claim 43, wherein a carbon and/or a nitrogen source is fed to the process.

45. (Withdrawn): The process of claim 44, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

46. (Withdrawn): The process of claim 38, wherein the microbial strain is a filamentous microbial strain.

47. (Withdrawn): The process of claim 46, wherein the filamentous strain is a fungus.
48. (Withdrawn): The process of claim 47, wherein the fungus is a *Penicillium* strain.
49. (Withdrawn): The process of claim 48, wherein the fungus is *Penicillium chrysogenum*.
50. (Withdrawn): The process of claim 48 wherein the  $\beta$ -lactam is penicillin V.
51. (Withdrawn): The method of claim 48 wherein the  $\beta$ -lactam is adipoyl-7-ADCA.
52. (Currently amended): A process for the production of a  $\beta$ -lactam, comprising the steps of:
- a) fermenting on a volume scale of at least 10 m<sup>3</sup>, a microbial strain that produces a  $\beta$ -lactam in a fermentation medium which contains only chemically defined ~~[[components]]~~ constituents as carbon and nitrogen sources and contains no complex raw materials, and
  - b) recovering the  $\beta$ -lactam from the fermentation medium, wherein the chemically defined ~~[[components]]~~ constituents comprise a carbon source selected from the group consisting of glucose, lactose, fructose, sucrose, a maltodextrin, starch inulin, glycerol, a vegetable oil, and a hydrocarbon; and~~[[/or]]~~ a nitrogen source selected from the group consisting of urea, ammonia, nitrate, an ammonium salt and an amino acid.
53. (Previously presented): The process of claim 52, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.
54. (Previously presented): The process of claim 52, wherein said fermenting is via a batch, a repeated batch, a fed-batch, a repeated fed-batch or a continuous fermentation process.
55. (Previously presented): The process of claim 54, wherein fermenting is via a fed-batch process.
56. (Currently amended): The process of claim 52, wherein a carbon and~~[[/or]]~~ a nitrogen source is fed to the process.

57. (Previously presented): The process of claim 56, wherein the carbon source is glucose and the nitrogen source is ammonia and/or an ammonium salt.

58. (Previously presented): The process of claim 52, wherein the microbial strain is a filamentous microbial strain.

59. (Previously presented): The process of claim 58, wherein the filamentous strain is a fungus.

60. (Previously presented): The process of claim 59, wherein the fungus is a *Penicillium* strain.

61. (Previously presented): The process of claim 60, wherein the fungus is *Penicillium chrysogenum*.

62. (Previously presented): The process of claim 59 wherein the  $\beta$ -lactam is penicillin V.

63. (Previously presented): The method of claim 59 wherein the  $\beta$ -lactam is adipoyl-7-ADCA.

64. (Withdrawn): A process for the production of a  $\beta$ -lactam, comprising the steps of:  
a) fermenting on a volume scale of at least 10 m<sup>3</sup>, a microbial strain that produces a  $\beta$ -lactam in a fermentation medium which contains chemically defined components and a complex carbon and/or nitrogen source which is less than 10% of the total carbon and/or nitrogen sources in the medium, and

b) recovering the  $\beta$ -lactam from the fermentation medium.